Non-Triangulatory Ranging and Noise Elimination via Neutrino Wave-EM Wave Time-of-Flight Analysis

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Introduction

Neutrino detectors offer a unique means of detecting ultra-faint radio signals as well as neutrino signatures. A combination of novel innovations should allow for neutrino detectors to be used in an unconventional manner not previously considered in order to achieve at least two important objectives: Noise profiling and elimination (ECCM) and the ranging of radio signals using a single receiver whereas multiple detectors may not be available to perform conventional triangulation.

Abstract

According to a previous publication by this author (ibid.,) the generation of EM waves also results in the emission of neutrino waves from the point of origin of the EM waves. It is possible to use a neutrino detector and a conventional passive RADAR receiver in conjunction with one another in order to construct an incredibly powerful tool for noise profiling and the elimination of interference. The proposed system would not merely reduce interference; it would eliminate it.

Strictly speaking, neutrinos and electromagnetism, it could be argued, travel at light speed. This assumption is, as a practical matter, false and has resulted in the failure by researchers to so much as attempt to exploit the differential between neutrino travel times and EM wave travel times. In practice, neutrinos tend to arrive at their destination substantially more rapidly than EM waves. Therefore, if the emission of EM generates a corresponding neutrino signature (I argue that it does) and we can make neutrino detectors portable and miniaturized, we can use the combination of these detectors and passive RADAR detectors in order to ascertain how far an EM wave traveled prior to reaching a detector from its point of emission. *The greater the gap between the arrival time of the neutrino wave and the conventional EM, the farther the EM wave must have traveled.*

To understand why neutrino waves arrive at their destination more rapidly than EM despite having the same basic velocity through space, one must consider two important factors governing travel-time: The most important is the property of EM called phasing. The other is the influence of magnetic fields such as the Earth's magnetic field upon electromagnetism, which has a slowing effect. Because neutrino waves do not experience phasing, they travel in a straight line and waste none of their energy on 'up' and 'down' oscillations. Furthermore, neutrinos are not affected by magnetic fields except in the case of direct interaction between a magneton and a neutrino, which results in mutual annihilation. A photon; by contrast; is physically slowed by interaction with magnetism.

An understanding of this fundamental difference between the behavior of neutrinos and photons can be exploited in order to enable the content of a jamming signal to be received and interpreted somewhat in advance of the actual electromagnetism and this information can be used to enable a processor to apply a perfected noise reduction algorithm to the received signal.

Beyond this, the miniaturized neutrino detector can serve as an impressively sensitive passive radio detector in its own right, potentially eliminating the need for active RADAR emissions.

Crucial to making such a miniaturized, portable detector possible are what might be termed *permanent cold cells* which can be embedded within the gold plating of a neutrino detector. These cells can be constructed in accordance with specifications indicated in the publication of 11 July 2023. As the near-absolute-zero temperatures are self-sustaining and the cells are insulated, artificial cooling mechanisms such as liquid argon are not needed for the operation of the detectors. This opens up a host of novel applications for the detectors including both the noise elimination and non-triangulatory ranging proposal.

Conclusion

Importantly, broadcast EM generates neutrino waves of far greater magnitude than in-flight EM. Reflected EM from RADAR systems or ambient light, for example, does not generate gravity waves of sufficiently meaningful intensity for this application. Therefore, jamming-associated signals can be distinguished from genuine RADAR reflections by the presence of meaningful neutrino waves received just ahead of the receipt of the standard electromagnetism associated with the jamming signal. Genuine RADAR signals would have an associated neutrino emission vis à vis its initial broadcast, but not with its reflection off of an object on would wish to detect. It would be a trivial matter to build a filtering algorithm based upon these principles once armed with this understanding.

This insight is sufficiently significant that it could render futile efforts to jam RADAR systems and communications equipment, recommending the concept for immediate development. Note: This technology can be used to allow drones to be controlled if combined with this author's *signal transflection* concept of 10 June 2025. A drone would be able to emit a signal and the manner of its modification by a transflector could be used as the means of getting a signal back to the drone. *Because reflected signals do not have a neutrino signature, they may be differentiated from jamming signals.*